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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,905	08/08/2001	Ronald R. Breaker	OCR-794B.US	5301

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EXAMINER
MCGARRY, SEAN

ART UNIT	PAPER NUMBER
1635	

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/830,905	BREAKER ET AL.	
	Examiner	Art Unit	
	Sean R McGarry	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-19 and 21* is/are pending in the application.

4a) Of the above claim(s) *17,18, 21, and 22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-16 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/17/03 has been entered.

Newly submitted claims 21 and 22 are directed to and claims 17 and 18 have been amended to read on an invention that is independent or distinct from the invention originally claimed for the following reasons: the new claims 21 and 22, and amended claims 17 and 18 now read on a method of screening for a “generic bridging domain” and the invention originally examined is drawn to constructs that contain a generic bridging domain. The invention originally examined is a tripartite construct and methods of making. The new claims and amended claims 17 and 18 are drawn to a materially different method where the method steps result in the identification of a “generic bridging domain” or a “functional bridging domain” where the instant invention results in or is a tripartite construct. The different method steps in the methods of the originally examined claims would not produce screen for a “generic bridging domain” or a “functional bridging domain”, for example.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 17, 18, 21 and 22 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claims 4 and 5 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "a tripartite construct having three functional domains" The use of this language indicates the presence of three parts of a physical construct or a construct of or divided into three parts. It is noted that the specification indicates at page 14 that a "domain" is a functional designation and not a physical one. The specification, however does not address such domains in the context as instantly claimed where the construct is required to be tripartite. Claim 5 indicates that at least two domains of the invention are at least partially or completely overlapping and the context of claim 4 implies such overlapping. It is not clear how completely overlapping domains, for example three functional domains in one physical domain would be part of a tripartite construct comprising three functional domains. The claim still requires two more domains to be tripartite in the context of the claims. The claims are therefore ambiguous.

Claims 10 and 19 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. It is unclear that these claims further limit their respective parent claims since neither objected claim appears to add any limitations not present in the parent claims, for example.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9-16, and 19 are rejected under 35 U.S.C. 102(a) as being anticipated by Araki et al [NAR Vol. 26, (14):3379-3384, 1998].

Araki et al disclose an allosteric hammerhead ribozyme (RNA) that contains an actuator domain (catalytic portion), a receptor domain (aptamer portion), and a communication module that is a “generic” reporter of an occupation state of the receptor domain (stem II). The specification does not provide a specific definition of a “generic reporter of an occupation state” of a receptor and without such a definition, stem II is considered to be a generic reporter since the stem II portion functions as a reporter

when bound to the aptamer's ligand via a conformational change due to the binding of the ligand, for example. Furthermore Araki reference teaches several GC containing stems and it is the position of the examiner that such a teaching indicates that GC stem II generically function in the compound disclosed by Araki et al (see Table I, for example). In figure 1 of Araki et al it can be seen that the FMN-binding loop (actuator domain) and the stem II domain (communication module/bridging domain) overlap. It is noted that the tripartite compound disclosed by Araki et al indicateds the presence of FMN via the cleavage of a target nucleic acid upon the binding of FMN to the tripartite compound which causes a conformational change in stem II allowing the tripartite compound to cleave its target where when not bound by FMN, the tripartite compound can not cleave its target. The material and methods of Araki et al disclose the process of making the tripartite compound where the compound is made via in vitro transcription and it is also disclosed there that the compound were separated on an polyacrylamide gel (a solid support).

Claims 1-4, 6, 7, 9-15 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Tang et al [Chemistry and Biology Vol. 4(6):453-459, 1997].

Tang et al disclose allosteric hammerhead ribozymes (RNA). The ribozymes contain an actuator domain (catalytic portion), a receptor domain (ATP aptamer domain and theophylline aptamer domain) and a bridging domain that contains a communication module that reports in a generic manner an occupation state of the receptor domain (stem II portion) and are therefore tripartite constructs comprising the

prescribed functional domains (see figures 1 and 4, for example). At least two of the domains are not overlapping (the catalytic and aptamer domains, for example). It has been disclosed that the actuator activity (cessation or reduction in catalytic activity) is triggered upon a conformational change of the stem II (bridging domain containing a communication module) via the binding of the aptamer domain by its respective ligand. It is noted that both the theophylline and ATP allosteric ribozymes contain the same stem II portion (see figures 1 and 4, for example) which clearly shows that the stem II portion function in a generic manner upon the binding of ligands to aptamers operably linked to the generic stem II portion, for example. It is noted that the assays disclosed in the reference indicate that a lack or reduction catalysis of a target RNA indicates the presence of a particular compound. It is disclosed in the Material and methods section of the reference that the ribozymes were made via *in vitro* transcription. It is also disclosed in that section that the ribozymes were isolated from an polyacrylamide gel (solid support).

Applicant's arguments filed 12/17/03 have been fully considered but they are not persuasive. Although applicant arguments are drawn to the grounds of rejection as set forth in the previous Official Action those pertinent to the new rejections will be addressed here. It is noted that the same references are used as 102 references but the claims as amended required application of different parts of the references, for example. Applicant appears to assert that the limitation "generic reporter" defines over the prior art. Applicant offers in their arguments that the term means that the functionality of the

bridging domain is not dependent on being coupled to a particular receptor domain, or of a specific receptor domain/signaling agent. The specification offers no such specific definition and the Araki reference is applied with an explanation of what might be considered a "generic reporter" and the Tang reference actually meets even a "generic reporter" as applicant asserts it meaning since it (stem II) functions in both an ATP and theophylline allosteric ribozymes. Applicant them argues the claims as if the claims require that the linking regions be capable of functioning in context with any aptamer which limitation is clearly not required by the claims. Applicant argues the Tang reference by discussing the allosteric ribozymes H1-H7, which are drawn to the ATP aptamers and assert that it only teaches a linking region in the context of one specific aptamer. Applicant should be well aware Tang et al. also disclose allosteric ribozyme H8 which contains the same stem II as H1-H7 and contains a theophylline aptamer. This stem II functions by a conformational chang with the ATP aptamer and theophylline aptamer. Apparently, this particular ribozyme construct [H8] disclosed in the Tang reference was overlooked in the analysis provided in applican's response.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean R McGarry whose telephone number is (571) 272-0761. The examiner can normally be reached on M-Th (6:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John LeGuyader can be reached on (571) 272-0760. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SRM

SEAN McGARRY
PRIMARY EXAMINER
1635